

Application for FCC Certificate
On Behalf of
Hisense Electric Co., Ltd.

LCD TV

Model No.	Serial No.	Brand
LTDN40V86MH	E1202178-01/01	Hisense

FCC ID : W9HLCDD0011

Prepared For : Hisense Electric Co., Ltd.
No.218 Qianwangang Road, Economy & Technology
Development Zone, Qingdao, China

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Report No. : ACI-F11148A1
Date of Test : Mar 09 – 14, 2012
Date of Report : Mar 16, 2012

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TEST REPORT FOR FCC CERTIFICATE

Applicant : Hisense Electric Co., Ltd.

Manufacturer : Hisense Electric Co., Ltd.

EUT Description : LCD TV

Model No.	Serial No.	Brand	Power Supply
LTDN40V86MH	E1202178-01/01	Hisense	120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2010
AND ANSI C63.4-2003*

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B (Class B) limits both radiated and conducted emissions.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report shows that the EUT (M/N: LTDN40V86MH; S/N: E1202178-01/01) which was tested in 3m anechoic chamber Mar 09 – 14, 2012 is technically compliance with the FCC official limits also.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

This report contains data that are not covered by the NVLAP accreditation.


This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.


The test results for EUT's TV functions are contained in No.F11149A1, a Verification report.

Date of Test : Mar 09 – 14, 2012 Date of Report : Mar 16, 2012

Producer : 
YENNY YU / Assistant

Review : 
DIO YANG / Assistant Manager

 For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : 
Authorized Signature EMC SAMMY CHEN / Deputy Manager

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Description of Test Item	Standard	Limits	Results
EMISSION			
Conducted Disturbance at the Mains Terminal	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2010 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2010 AND ANSI C63.4-2003	15.109(a) Class B	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description : LCD TV

Type of EUT : Production Pre-product Pro-type

Model No. : LTDN40V86MH

Serial No. : E1202178-01/01

Brand : Hisense

Note : The different list for all the models are as follows:

Report No.	Model No.	Rev. Summary	Edition No.	Data of Rev.
ACI-F11148	LTDN40V86MH	Original Report.	0	Oct 27, 2011
ACI-F11148A1	LTDN40V86MH	To add a new panel	Rev. A1	Mar 16, 2012

Applicant : Hisense Electric Co., Ltd.
No.218 Qianwangang Road, Economy &
Technology Development Zone, Qingdao, China

Manufacturer : Hisense Electric Co., Ltd.
No.218 Qianwangang Road, Economy &
Technology Development Zone, Qingdao, China

LCD Panel : Manufacturer : SAMSUNG
M/N : LTA400HM07

Max Resolution : 1024*768@60Hz

D-Sub Cable : Shielded, Detachable, 1.85m,
with two cores on cable

HDMI Cable : Shielded, Detachable, 1.00m,

Power Cord : Unshielded, Detachable, 1.80m

Remark:

The EUT is a LCD TV which input/output ports as follows:

Back Port:

- (1) One HDMI1 Port : Connected with PC
- (2) One HDMI2 Port : Connected with DVD #1
- (3) One component of YPbPr2 Port : Connected with DVD #2
- (4) One component of YPbPr2 Audio Port : Connected with DVD #2
- (5) One component of AV Port : Connected with DVD #1
- (6) One component of Audio Out Port : Connected with Speaker
- (7) One Headphone Port : Connected with Earphone
- (8) One ANT Port : Connected with TV SG / ATSC SG
- (9) One Digital Audio Out Port : Connected with DVD #1
- (10) One SERVICE port : do not open to customer

Side Port

- (1) One HDMI3 Port : Connected with DVD #2
- (2) One USB Port : Connected with U-Disk
- (3) One PC Audio Port : Connected with PC
- (4) One VGA Port : Connected with PC
- (5) One component of YPbPr1 Port : Connected with DVD #1
- (6) One component of YPbPr1 Audio Port : Connected with DVD #1
- (7) One RJ12 port : Connected with Modem

2.2 Peripherals

2.2.1 PC

Manufacturer : HP
Model Number : dx7200MT
Serial Number : CNG622017W
Power Cord : Unshielded, Detachable, 1.8m
Certificate : FCC DoC; CE/EMC; VCCI; C-Tick; UL
BSMI (R33001) 3C (A000111)
MIC (E-A011-04-2659(B))

2.2.2 Printer

Manufacturer : HP
Model Number : C3990A
Serial Number : JPZX020487
Data Cable : Shielded, detachable, 1.5m
Certificate : GS, CE/EMC, C-Tick, FCC DoC

2.2.3 Keyboard

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 7668200662248
Data Cable : Shielded, undetachable, 1.8m
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,
BSMI

2.2.4 Mouse

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 6965712071551
Data Cable : Shielded, undetachable, 1.8m.
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,
BSMI

2.2.5 Modem

Manufacturer : TP Link
Model Number : TM-EC5658V
Serial Number : 07123301053
Data Cable : Shielded, undetachable, 1.8m.
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,
BSMI

2.2.6 Earphone

Manufacturer : SONY
Model Number : MDR-E808
Serial Number : 1808030805305506

2.2.7 TV Signal Generator

Manufacturer : FLUKE
Model Number : 54200m01
Serial Number : 814008
Data Cable : Shielded, detachable, 2.0m
Power Cord : Unshielded, detachable, 2.0m
Certificate : CE/EMC, FCC DoC, CCC

2.2.8 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.9 DVD #1

Manufacturer : PHILIPS
Model Number : DVP3986K/93
Serial Number : KX1A0902120108
Certificate : FCC DoC, CE/EMC, CCC

2.2.10 DVD #2

Manufacturer : LG
Model Number : DF9921N
Serial Number : 3850R-M846W
Certificate : FCC DoC, CE/EMC, CCC

2.2.11 Speaker

Manufacturer : Speaker
Model Number : FS-04
Serial Number : 002

2.3 Description of Test Facility

Site Description (No.3 3m Chamber) : Sept. 17, 1998 file on
Apr 29, 2009 Renewed
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046, USA

Name of Firm : Audix Technology (Shanghai) Co., Ltd.

Site Location : 3F 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai 200233, China

NVLAP Lab Code : 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty:	U = 3.38dB
Radiated Emission Expanded Uncertainty (30-200MHz):	U = 4.58 dB (horizontal)
	U = 4.70 dB (vertical)
Radiated Emission Expanded Uncertainty (200M-1GHz):	U = 4.84 dB (horizontal)
	U = 4.70 dB (vertical)

3 CONDUCTED EMISSION TEST

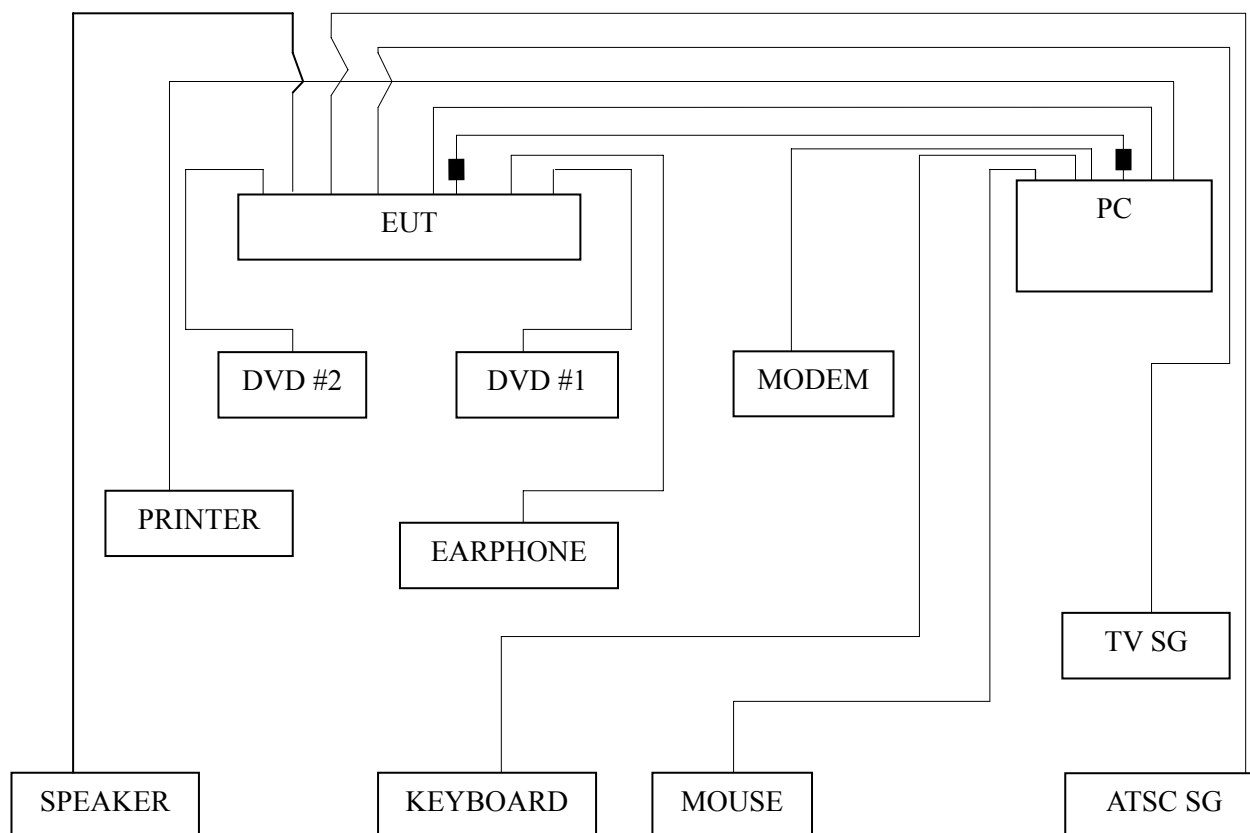
3.1 Test Equipment

The following test equipments are used during the conducted emission test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Mar 22, 2011	Mar 22, 2012
2.	Artificial Mains Network (AMN #1)	R&S	ESH2-Z5	843890/011	Mar 22, 2011	Mar 22, 2012
3.	Artificial Mains Network (AMN #2)	R&S	ENV4200	100125	Mar 22, 2011	Mar 22, 2012
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 18, 2011	Mar 18, 2012
5.	50 Ω Terminator	Anritsu	BNC	001	Mar 22, 2011	Mar 22, 2012
6.	Software	Audix	E3	SET00200 9804M592	--	--

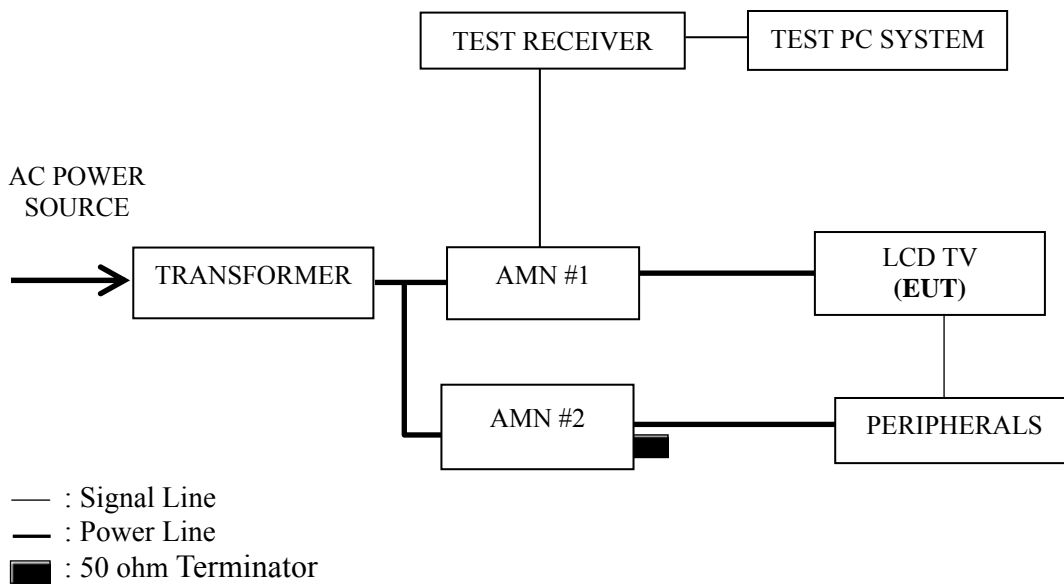
3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals



■ : Ferrite core

3.2.2 Conducted Disturbance Test Setup



3.3 Conducted Emission Limit [FCC Part 15 Subpart B 15.107(a)]

Frequency Range (MHz)	Limits dB (μV)	
	Quasi-peak	Average
0.15 ~ 0.5	66~56	56~46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE 1 – The lower limit shall apply at the transition frequencies.
 NOTE 2 – The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz~0.50 MHz

3.4 Test Configuration

The EUT (listed in Sec.2.1) and the peripherals (listed in Sec 2.2) were installed as shown on Sec.3.2 to meet FCC requirement and operating in a manner that tends to maximize its emission level in a normal application.

3.5 Operating Condition of EUT

3.5.1 Setup the EUT and peripherals as shown in Sec. 3.2.

3.5.2 Turn on the power of all equipments and the EUT.

3.5.3 Set the contrast & brightness of EUT to maximum.

3.5.4 PC system ran the self-test program “EMC Test” by windows XP and sent “H” characters to EUT through graphic card, the EUT’s screen displayed and filled with “H” pattern by its resolution (Via D-Sub & HDMI Input).

3.5.5 Repeat above procedure 3.5.4 for difference test mode.

3.5.6 The other peripherals devices were driven and operated during the test.

3.5.7 The test modes are as follows:

Test Mode
D-Sub 640*480@60Hz
D-Sub 800*600@60Hz
D-Sub 1024*768@60Hz
HDMI 640*480@60Hz
HDMI 800*600@60Hz
HDMI 1024*768@60Hz
USB Play

3.6 Test Procedures

The EUT and peripherals were connected to the power mains through an Artificial Mains Network (AMN). This provided a 50 ohm coupling impedance for the measuring equipment.

Both sides of AC line (Line & Neutral) were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed or manipulated according to ANSI C63.4:2003 during conducted emission test.

The bandwidth of R&S Test Receiver ESCI was set at 9 kHz.

The frequency range from 150 kHz to 30 MHz was checked.

The test modes were done on conducted disturbance test and all the test results are listed in Sec. 3.7.

3.7 Test Results

< **PASS** >

The frequency and amplitude of the highest conducted emission relative to the limit is reported. All emissions not reported below are too low against the prescribed limits.

Test Mode	Data Page
D-Sub 640*480@60Hz	P14
D-Sub 800*600@60Hz	P15
D-Sub 1024*768@60Hz	P16
HDMI 640*480@60Hz	P17
HDMI 800*600@60Hz	P18
HDMI 1024*768@60Hz	P19
USB Play	P20

NOTE 1 – Factor = Cable Loss + AMN Factor.

NOTE 2 – Emission Level = Meter Reading + Factor.

NOTE 3 – “QP” means “Quasi-Peak” values, “AV” means “Average” values.

NOTE 4 – The worst case is for D-Sub 640*480@60Hz test mode. The worst emission is detected at 19.224 MHz (Quasi-Peak Value) with corrected signal level of 45.10 dB (μV) (limit is 60.00 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 48%RH

Serial No. : E1202178-01/01 Date of Test : Mar 09, 2012

Test Mode : D-Sub 640*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.152	42.53	0.22	42.75	65.91	23.16	QP
	0.585	34.17	0.34	34.51	56.00	21.49	
	0.813	39.25	0.40	39.65	56.00	16.35	
	2.931	33.98	0.46	34.44	56.00	21.56	
	4.622	35.83	0.55	36.38	56.00	19.62	
	15.226	43.69	0.86	44.55	60.00	15.45	
	0.152	32.17	0.22	32.39	55.91	23.52	AV
	0.585	23.18	0.34	23.52	46.00	22.48	
	0.813	28.63	0.40	29.03	46.00	16.97	
	2.931	23.47	0.46	23.93	46.00	22.07	
	4.622	25.37	0.55	25.92	46.00	20.08	
	15.226	33.15	0.86	34.01	50.00	15.99	
Neutral	0.151	42.60	0.19	42.79	65.93	23.14	QP
	0.505	33.66	0.24	33.90	56.00	22.10	
	0.813	38.70	0.34	39.04	56.00	16.96	
	2.931	34.91	0.60	35.51	56.00	20.49	
	4.874	37.56	0.76	38.32	56.00	17.68	
	19.224	43.92	1.18	45.10	60.00	14.90	
	0.151	32.16	0.19	32.35	55.93	23.58	AV
	0.505	23.45	0.24	23.69	46.00	22.31	
	0.813	28.36	0.34	28.70	46.00	17.30	
	2.931	24.38	0.60	24.98	46.00	21.02	
	4.874	27.16	0.76	27.92	46.00	18.08	
	19.224	33.28	1.18	34.46	50.00	15.54	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 48%RH

Serial No. : E1202178-01/01 Date of Test : Mar 09, 2012

Test Mode : D-Sub 800*600@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.152	42.62	0.22	42.84	65.88	23.04	QP
	0.585	34.18	0.34	34.52	56.00	21.48	
	0.813	38.72	0.40	39.12	56.00	16.88	
	2.931	34.53	0.46	34.99	56.00	21.01	
	4.874	35.15	0.55	35.70	56.00	20.30	
	15.552	42.38	0.86	43.24	60.00	16.76	
	0.152	32.18	0.22	32.40	55.88	23.48	AV
	0.585	23.28	0.34	23.62	46.00	22.38	
	0.813	28.33	0.40	28.73	46.00	17.27	
	2.931	24.17	0.46	24.63	46.00	21.37	
	4.874	24.40	0.55	24.95	46.00	21.05	
	15.552	32.19	0.86	33.05	50.00	16.95	
Neutral	0.153	42.93	0.19	43.12	65.82	22.70	QP
	0.505	33.50	0.24	33.74	56.00	22.26	
	0.813	39.03	0.34	39.37	56.00	16.63	
	3.025	34.92	0.61	35.53	56.00	20.47	
	4.874	37.86	0.76	38.62	56.00	17.38	
	25.591	43.32	1.33	44.65	60.00	15.35	
	0.153	32.54	0.19	32.73	55.82	23.09	AV
	0.505	23.18	0.24	23.42	46.00	22.58	
	0.813	28.63	0.34	28.97	46.00	17.03	
	3.025	24.61	0.61	25.22	46.00	20.78	
	4.874	27.51	0.76	28.27	46.00	17.73	
	25.591	32.62	1.33	33.95	50.00	16.05	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 48%RH

Serial No. : E1202178-01/01 Date of Test : Mar 09, 2012

Test Mode : D-Sub 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.152	42.78	0.22	43.00	65.89	22.89	QP
	0.505	33.79	0.31	34.10	56.00	21.90	
	0.813	39.16	0.40	39.56	56.00	16.44	
	2.931	34.84	0.46	35.30	56.00	20.70	
	4.874	36.35	0.55	36.90	56.00	19.10	
	15.388	41.05	0.86	41.91	60.00	18.09	
	0.152	32.15	0.22	32.37	55.89	23.52	AV
	0.505	23.15	0.31	23.46	46.00	22.54	
	0.813	28.71	0.40	29.11	46.00	16.89	
	2.931	24.31	0.46	24.77	46.00	21.23	
	4.874	25.83	0.55	26.38	46.00	19.62	
	15.388	30.60	0.86	31.46	50.00	18.54	
Neutral	0.152	42.93	0.19	43.12	65.88	22.76	QP
	0.505	33.39	0.24	33.63	56.00	22.37	
	0.813	38.61	0.34	38.95	56.00	17.05	
	2.931	35.00	0.60	35.60	56.00	20.40	
	4.622	37.92	0.76	38.68	56.00	17.32	
	15.226	43.67	1.16	44.83	60.00	15.17	
	0.152	32.16	0.19	32.35	55.88	23.53	AV
	0.505	23.10	0.24	23.34	46.00	22.66	
	0.813	28.42	0.34	28.76	46.00	17.24	
	2.931	24.39	0.60	24.99	46.00	21.01	
	4.622	27.42	0.76	28.18	46.00	17.82	
	15.226	33.28	1.16	34.44	50.00	15.56	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 48%RH

Serial No. : E1202178-01/01 Date of Test : Mar 09, 2012

Test Mode : HDMI 640*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	43.38	0.22	43.60	66.00	22.40	QP
	0.567	34.43	0.33	34.76	56.00	21.24	
	0.862	39.32	0.38	39.70	56.00	16.30	
	2.900	34.13	0.46	34.59	56.00	21.41	
	4.952	36.52	0.55	37.07	56.00	18.93	
	15.885	41.07	0.87	41.94	60.00	18.06	
	0.150	32.58	0.22	32.80	56.00	23.20	AV
	0.567	24.31	0.33	24.64	46.00	21.36	
	0.862	28.76	0.38	29.14	46.00	16.86	
	2.900	23.67	0.46	24.13	46.00	21.87	
	4.952	26.30	0.55	26.85	46.00	19.15	
	15.885	30.64	0.87	31.51	50.00	18.49	
Neutral	0.156	41.45	0.19	41.64	65.65	24.01	QP
	0.585	35.09	0.25	35.34	56.00	20.66	
	0.853	39.01	0.39	39.40	56.00	16.60	
	3.107	36.58	0.62	37.20	56.00	18.80	
	4.952	39.11	0.76	39.87	56.00	16.13	
	25.864	42.85	1.33	44.18	60.00	15.82	
	0.156	30.24	0.19	30.43	55.65	25.22	AV
	0.585	24.62	0.25	24.87	46.00	21.13	
	0.853	28.64	0.39	29.03	46.00	16.97	
	3.107	26.38	0.62	27.00	46.00	19.00	
	4.952	28.67	0.76	29.43	46.00	16.57	
	25.864	32.18	1.33	33.51	50.00	16.49	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 48%RH

Serial No. : E1202178-01/01 Date of Test : Mar 09, 2012

Test Mode : HDMI 800*600@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.152	43.01	0.22	43.23	65.89	22.66	QP
	0.585	34.34	0.34	34.68	56.00	21.32	
	0.862	39.04	0.38	39.42	56.00	16.58	
	2.931	34.50	0.46	34.96	56.00	21.04	
	4.874	36.08	0.55	36.63	56.00	19.37	
	15.226	42.78	0.86	43.64	60.00	16.36	
	0.152	32.56	0.22	32.78	55.89	23.11	AV
	0.585	24.16	0.34	24.50	46.00	21.50	
	0.862	28.67	0.38	29.05	46.00	16.95	
	2.931	24.10	0.46	24.56	46.00	21.44	
	4.874	25.38	0.55	25.93	46.00	20.07	
	15.226	32.41	0.86	33.27	50.00	16.73	
Neutral	0.153	43.23	0.19	43.42	65.84	22.42	QP
	0.585	34.49	0.25	34.74	56.00	21.26	
	0.813	38.43	0.34	38.77	56.00	17.23	
	2.736	34.90	0.58	35.48	56.00	20.52	
	4.874	39.65	0.76	40.41	56.00	15.59	
	20.924	43.62	1.20	44.82	60.00	15.18	
	0.153	32.76	0.19	32.95	55.84	22.89	AV
	0.585	24.19	0.25	24.44	46.00	21.56	
	0.813	27.68	0.34	28.02	46.00	17.98	
	2.736	24.51	0.58	25.09	46.00	20.91	
	4.874	28.37	0.76	29.13	46.00	16.87	
	20.924	33.28	1.20	34.48	50.00	15.52	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 48%RH

Serial No. : E1202178-01/01 Date of Test : Mar 09, 2012

Test Mode : HDMI 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.153	42.86	0.22	43.08	65.84	22.76	QP
	0.579	34.28	0.33	34.61	56.00	21.39	
	0.813	39.86	0.40	40.26	56.00	15.74	
	2.931	34.66	0.46	35.12	56.00	20.88	
	4.874	36.69	0.55	37.24	56.00	18.76	
	19.326	41.57	0.97	42.54	60.00	17.46	
	0.153	32.51	0.22	32.73	55.84	23.11	AV
	0.579	23.76	0.33	24.09	46.00	21.91	
	0.813	29.33	0.40	29.73	46.00	16.27	
	2.931	24.31	0.46	24.77	46.00	21.23	
	4.874	26.37	0.55	26.92	46.00	19.08	
	19.326	31.25	0.97	32.22	50.00	17.78	
Neutral	0.150	43.19	0.18	43.37	65.99	22.62	QP
	0.579	34.75	0.25	35.00	56.00	21.00	
	0.813	38.75	0.34	39.09	56.00	16.91	
	2.931	35.12	0.60	35.72	56.00	20.28	
	4.874	37.28	0.76	38.04	56.00	17.96	
	25.864	43.41	1.33	44.74	60.00	15.26	
	0.150	32.84	0.18	33.02	55.99	22.97	AV
	0.579	24.36	0.25	24.61	46.00	21.39	
	0.813	28.36	0.34	28.70	46.00	17.30	
	2.931	24.72	0.60	25.32	46.00	20.68	
	4.874	26.72	0.76	27.48	46.00	18.52	
	25.864	32.64	1.33	33.97	50.00	16.03	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 48%RH

Serial No. : E1202178-01/01 Date of Test : Mar 09, 2012

Test Mode : USB Play

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.152	42.41	0.22	42.63	65.91	23.28	QP
	0.505	33.93	0.31	34.24	56.00	21.76	
	0.813	38.91	0.40	39.31	56.00	16.69	
	2.931	33.56	0.46	34.02	56.00	21.98	
	4.874	34.99	0.55	35.54	56.00	20.46	
	15.388	42.45	0.86	43.31	60.00	16.69	
	0.152	32.00	0.22	32.22	55.91	23.69	AV
	0.505	23.51	0.31	23.82	46.00	22.18	
	0.813	28.62	0.40	29.02	46.00	16.98	
	2.931	23.14	0.46	23.60	46.00	22.40	
	4.874	24.30	0.55	24.85	46.00	21.15	
	15.388	31.68	0.86	32.54	50.00	17.46	
Neutral	0.152	42.59	0.19	42.78	65.91	23.13	QP
	0.573	33.80	0.25	34.05	56.00	21.95	
	0.813	39.94	0.34	40.28	56.00	15.72	
	2.931	34.70	0.60	35.30	56.00	20.70	
	4.874	37.93	0.76	38.69	56.00	17.31	
	26.418	42.97	1.32	44.29	60.00	15.71	
	0.152	32.24	0.19	32.43	55.91	23.48	AV
	0.573	23.14	0.25	23.39	46.00	22.61	
	0.813	29.36	0.34	29.70	46.00	16.30	
	2.931	24.35	0.60	24.95	46.00	21.05	
	4.874	27.36	0.76	28.12	46.00	17.88	
	26.418	32.57	1.32	33.89	50.00	16.11	

TEST ENGINEER: WENCY YANG

4 RADIATED EMISSION TEST

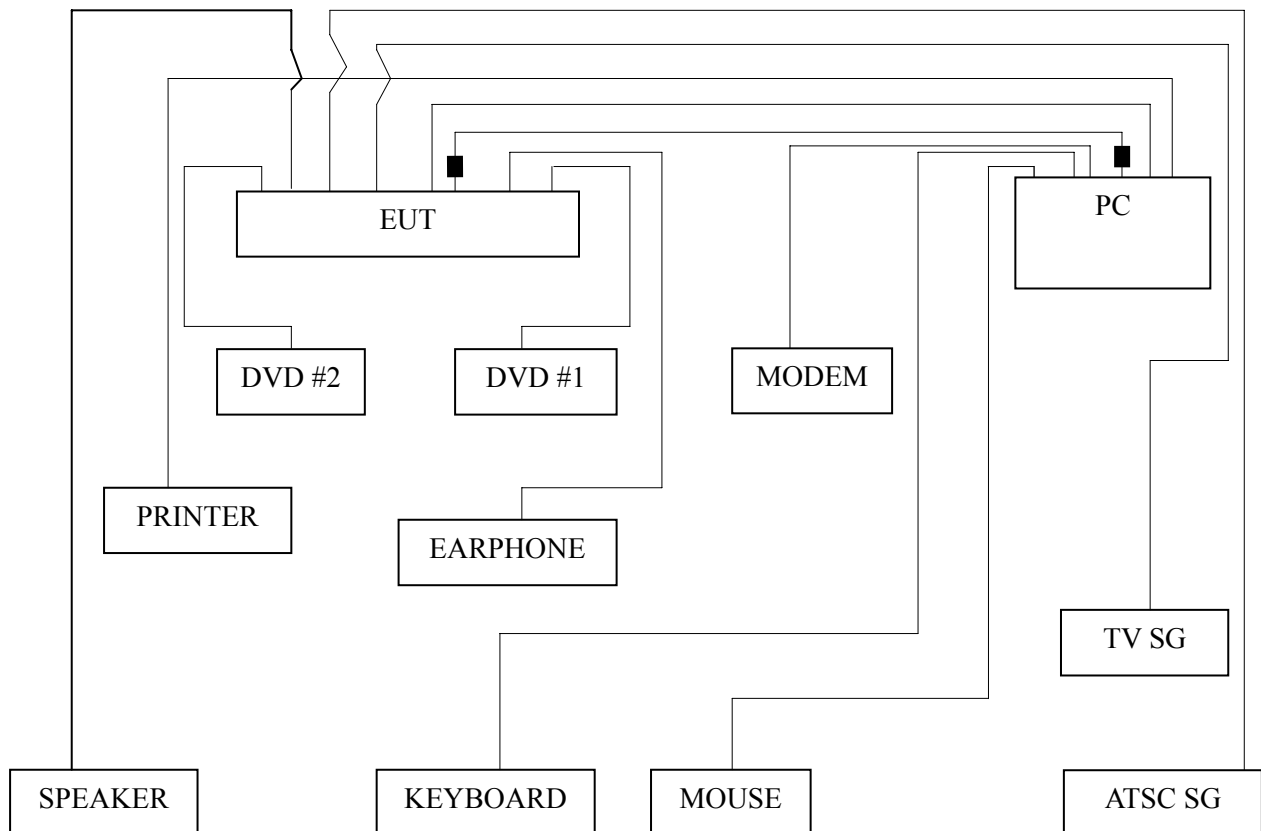
4.1 Test Equipment

The following test equipments are used during the radiated emission test in a semi-anechoic chamber:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESVS10	844594/001	Mar 22, 2011	Mar 22, 2012
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 18, 2011	Mar 18, 2012
3.	Bi-log Antenna	TESEQ	CBL6112D	23192	Dec 01, 2011	Dec 01, 2012
4.	Spectrum Analyzer	Agilent	E7405A	MY45106600	Mar 22, 2011	Mar 22, 2012
5.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426390	Sep 18, 2011	Mar 18, 2012
6.	Software	Audix	E3	SET00200 9912M295-2	--	--

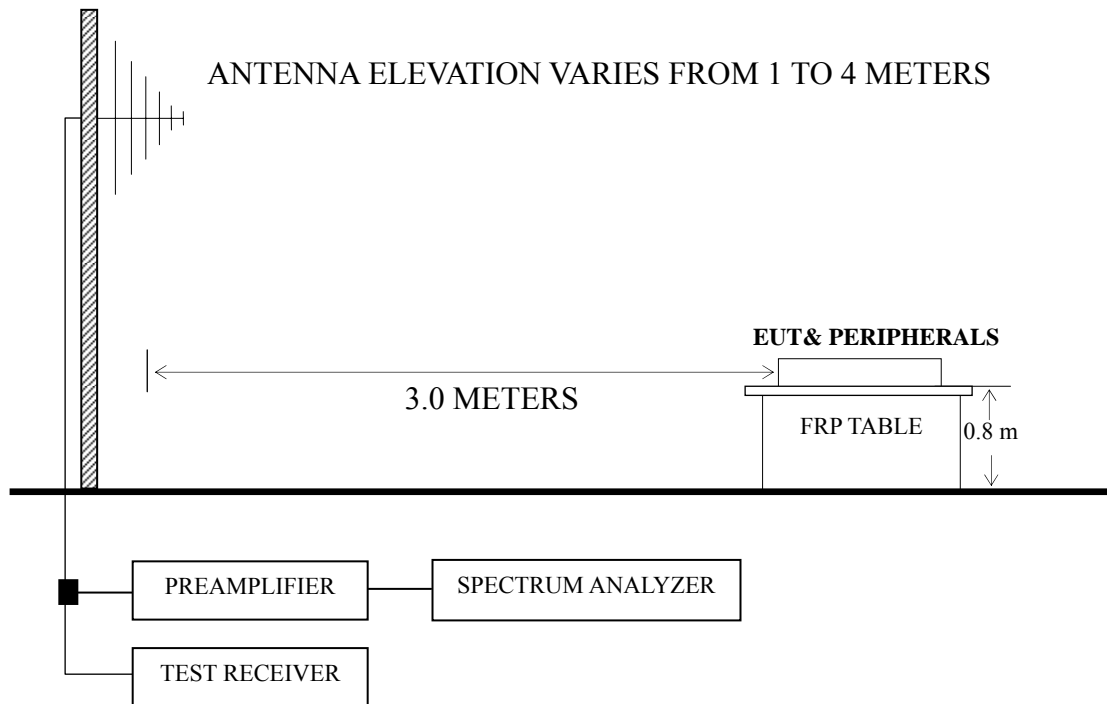
4.2 Block Diagram of Test Setup

4.2.1 EUT and Peripherals



■: Ferrite core

4.2.2 Radiated emission test setup



■ : 50 ohm Coaxial Switch

4.3 Radiated Emission Limit [FCC Part 15 Subpart B 15.109(a)]

Frequency (MHz)	Distance (m)	Field strength limits	
		($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0

NOTE 1 - Emission Level dB ($\mu\text{V/m}$) = 20 log Emission Level ($\mu\text{V/m}$)

NOTE 2 - The tighter limit applies at the band edges.

NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

NOTE 4 - The limits shown are based on Quasi-peak value detector.

4.4 Test Configuration

The configuration of the EUT and peripherals are same as those used in conducted emission test.

Please refer to Sec.3.4.

4.5 Operating Condition of EUT

Same as conducted emission test which is listed in Sec.3.5, except for the test setup replaced by Sec.4.2.

4.6 Test Procedures

The EUT and peripherals were placed on a FRP turntable that is 0.8 meter above ground. The FRP turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. Broadband antenna (Calibrated Bilog Antenna) was used as receiving antenna. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to ANSI C63.4:2003 requirements during radiated emission test.

The I.F. bandwidth of Test Receiver R&S ESVS10 was set at 120 kHz.

The frequency range from 30 MHz to 1000MHz was checked for all test modes.

The test modes were done on radiated disturbance test and all the test results are listed in Sec.4.7.

4.7 Test Results

<PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Test Mode	Data Page
D-Sub 640*480@60Hz	P24
D-Sub 800*600@60Hz	P25
D-Sub 1024*768@60Hz	P26
HDMI 640*480@60Hz	P27
HDMI 800*600@60Hz	P28
HDMI 1024*768@60Hz	P29
USB Play	P30

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading.

NOTE 2 – All readings are Quasi-Peak values.

NOTE 3 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 4 – The worst case is for D-Sub 1024*768@60Hz test mode. The worst emission at horizontal polarization was detected at 37.600 MHz with corrected signal level of 36.35 dB ($\mu\text{V}/\text{m}$) (limit is 40.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.80 m height and the turntable was at 120°. The worst emission at vertical polarization was detected at 299.660 MHz with corrected signal level of 43.66 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.00 m height and the turntable was at 265°.

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 60%RH

Serial No. : E1202178-01/01 Date of Test : Mar 14, 2012

Test Mode : D-Sub 640*480@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	75.590	23.20	10.27	1.53	35.00	40.00	5.00
	123.120	25.27	10.95	2.04	38.26	43.50	5.24
	213.330	25.95	10.33	2.47	38.75	43.50	4.75
	279.290	18.43	13.09	2.70	34.22	46.00	11.78
	377.260	20.32	15.83	2.95	39.10	46.00	6.90
	451.950	18.05	17.01	3.13	38.19	46.00	7.81
Vertical	37.760	12.27	14.00	0.86	27.13	40.00	12.87
	68.800	19.90	9.79	1.39	31.08	40.00	8.92
	84.320	21.48	10.75	1.64	33.87	40.00	6.13
	116.330	23.80	11.07	2.00	36.87	43.50	6.63
	231.760	28.20	11.14	2.55	41.89	46.00	4.11
	277.350	25.86	13.05	2.68	41.59	46.00	4.41

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 60%RH

Serial No. : E1202178-01/01 Date of Test : Mar 14, 2012

Test Mode : D-Sub 800*600@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	37.760	13.70	14.00	0.86	28.56	40.00	11.44
	88.200	26.20	10.93	1.70	38.83	43.50	4.67
	117.300	25.60	11.05	2.00	38.65	43.50	4.85
	299.660	26.89	13.70	2.76	43.35	46.00	2.65
	372.410	20.10	15.72	2.93	38.75	46.00	7.25
	741.980	14.73	19.98	3.78	38.49	46.00	7.51
Vertical	36.700	21.10	14.66	0.85	36.61	40.00	3.39
	68.800	24.72	9.79	1.39	35.90	40.00	4.10
	109.540	26.21	11.19	1.93	39.33	43.50	4.17
	211.390	25.96	10.26	2.47	38.69	43.50	4.81
	376.290	19.90	15.79	2.93	38.62	46.00	7.38
	446.130	17.23	16.92	3.11	37.26	46.00	8.74

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 60%RH

Serial No. : E1202178-01/01 Date of Test : Mar 14, 2012

Test Mode : D-Sub 1024*768@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	37.600	21.39	14.10	0.86	36.35	40.00	3.65
	75.590	24.05	10.27	1.53	35.85	40.00	4.15
	110.510	26.56	11.18	1.94	39.68	43.50	3.82
	217.210	26.52	10.48	2.50	39.50	46.00	6.50
	377.260	19.89	15.83	2.95	38.67	46.00	7.33
	497.540	17.64	17.58	3.27	38.49	46.00	7.51
Vertical	37.760	15.75	14.00	0.86	30.61	40.00	9.39
	85.200	25.10	10.80	1.66	37.56	40.00	2.44
	117.300	25.24	11.05	2.00	38.29	43.50	5.21
	242.430	27.94	11.65	2.58	42.17	46.00	3.83
	299.660	27.20	13.70	2.76	43.66	46.00	2.34
	577.080	20.10	18.08	3.42	41.60	46.00	4.40

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 60%RH

Serial No. : E1202178-01/01 Date of Test : Mar 14, 2012

Test Mode : HDMI 640*480@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	36.790	16.43	14.57	0.85	31.85	40.00	8.15
	61.040	16.27	9.21	1.21	26.69	40.00	13.31
	108.570	18.22	11.21	1.93	31.36	43.50	12.14
	213.330	18.95	10.33	2.47	31.75	43.50	11.75
	377.260	13.32	15.83	2.95	32.10	46.00	13.90
	451.950	11.05	17.01	3.13	31.19	46.00	14.81
Vertical	60.070	10.83	9.14	1.19	21.16	40.00	18.84
	92.080	17.30	11.08	1.75	30.13	43.50	13.37
	134.760	18.12	10.72	2.14	30.98	43.50	12.52
	231.760	23.20	11.14	2.55	36.89	46.00	9.11
	377.260	15.37	15.83	2.95	34.15	46.00	11.85
	670.200	4.41	19.15	3.62	27.18	46.00	18.82

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 60%RH

Serial No. : E1202178-01/01 Date of Test : Mar 14, 2012

Test Mode : HDMI 800*600@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	37.760	8.70	14.00	0.86	23.56	40.00	16.44
	88.200	22.85	10.93	1.70	35.48	43.50	8.02
	117.300	20.60	11.05	2.00	33.65	43.50	9.85
	220.120	24.63	10.64	2.50	37.77	46.00	8.23
	299.660	21.89	13.70	2.76	38.35	46.00	7.65
	372.410	15.10	15.72	2.93	33.75	46.00	12.25
Vertical	36.790	19.03	14.57	0.85	34.45	40.00	5.55
	68.800	19.72	9.79	1.39	30.90	40.00	9.10
	124.090	20.03	10.93	2.05	33.01	43.50	10.49
	211.390	20.96	10.26	2.47	33.69	43.50	9.81
	376.290	14.90	15.79	2.93	33.62	46.00	12.38
	446.130	12.23	16.92	3.11	32.26	46.00	13.74

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 60%RH

Serial No. : E1202178-01/01 Date of Test : Mar 14, 2012

Test Mode : HDMI 1024*768@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	37.760	21.28	14.00	0.86	36.14	40.00	3.86
	75.590	20.05	10.27	1.53	31.85	40.00	8.15
	120.210	22.10	11.00	2.03	35.13	43.50	8.37
	217.210	22.52	10.48	2.50	35.50	46.00	10.50
	377.260	15.89	15.83	2.95	34.67	46.00	11.33
	497.540	13.64	17.58	3.27	34.49	46.00	11.51
Vertical	88.200	21.19	10.93	1.70	33.82	43.50	9.68
	117.300	19.24	11.05	2.00	32.29	43.50	11.21
	242.430	21.94	11.65	2.58	36.17	46.00	9.83
	344.280	13.88	14.96	2.86	31.70	46.00	14.30
	497.540	10.81	17.58	3.27	31.66	46.00	14.34
	741.980	9.11	19.98	3.78	32.87	46.00	13.13

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LTDN40V86MH Humidity : 60%RH

Serial No. : E1202178-01/01 Date of Test : Mar 14, 2012

Test Mode : USB Play

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	75.590	21.92	10.27	1.53	33.72	40.00	6.28
	223.030	18.36	10.76	2.51	31.63	46.00	14.37
	269.590	19.17	12.78	2.66	34.61	46.00	11.39
	371.440	15.05	15.68	2.93	33.66	46.00	12.34
	562.530	9.11	17.99	3.39	30.49	46.00	15.51
	817.640	9.44	20.55	4.11	34.10	46.00	11.90
Vertical	61.040	20.22	9.21	1.21	30.64	40.00	9.36
	121.180	22.91	10.99	2.03	35.93	43.50	7.57
	211.390	21.56	10.26	2.47	34.29	43.50	9.21
	378.230	12.06	15.83	2.95	30.84	46.00	15.16
	453.890	10.45	17.03	3.13	30.61	46.00	15.39
	872.930	7.49	20.37	4.60	32.46	46.00	13.54

TEST ENGINEER: RAVEN JIN

5 DEVIATION TO TEST SPECIFICATIONS

None.

6 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Al Tape	DBA40X100\ROH	JOINSET	See Internal Photos Figure 18
Foam	DAA14X1X55.7\CR\VGA\ROH	JOINSET	See Internal Photos Figure 19
Ferrite core	ZCAT3035-1330\ROH	FEELUX	See Internal Photos Figure 16
		Rui Feng Electronic Co., Ltd.	
		Hai An Magnetic Material No.2 Factory	
Ferrite core	ZCAT2132-1130\ROH	JIANGSU LETTALL ELECTRONICS CO., LTD.	See Internal Photos Figure 17
		FEELUX	
		Rui Feng Electronic Co., Ltd.	
Ferrite core	ZCAT2132-1130\ROH	Hai An Magnetic Material No.2 Factory	See Internal Photos Figure 17
		JIANGSU LETTALL ELECTRONICS CO., LTD.	
		FEELUX	

Note: We had required the applicant and manufacturer that all electrical and mechanical devices employed for spurious radiation suppression, including any modifications made during certification testing, must be incorporated in each unit marked

TEST ENGINEER:



(RAVEN JIN)